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DEPARTMENT OF NOTES, REVIEWS, ETC.

It is the purpose, in this department, to present from time to time brief original notes, both of methods of work and of results, by members of the Society. All members are invited to submit such items. In the absence of these there will be given a few brief abstracts of recent work of more general interest to students and teachers. There will be no attempt to make these abstracts exhaustive. They will illustrate progress without attempting to define it, and will thus give to the teacher current illustrations, and to the isolated student suggestions of suitable fields of investigation.—[Editor.]

A PHOTOGRAPHIC DARK BOX FOR FIELD WORK

The difficulties encountered in doing photographic work in the field where dark-room conveniences are lacking led to the making of a "Dark Box" which is an adaptation of the inoculating chamber in common use in plant pathology. I have found it so satisfactory that I use it entirely for plate work even in the laboratory where a dark-room is available.

The "Dark Box" (Plate I) is a plain light-tight box 24 inches long, 18 inches wide and 20 inches high. It is made of light weight lumber ¾-inch in thickness. To avoid all chances of light entering, it is made of well seasoned lumber, all corners are joined as shown in the accompanying diagram at *k* and all seams in the sides are made by inserting a strip—"tongue"—¼x¾ inches in cross section as is shown at *m* in the diagram. Besides these precautions all joints are glued as well as nailed. In the right hand end is a door 14x11 inches for admitting to the box plates, plate tank and such things as are to be used in the work. In the top and back are red glass windows 10x8½ inches set firmly with putty. The back one serves to admit light and the top one permits the operator to see what he is doing in cases where sight is needed. (When using the windows it is well to cut out side lights by throwing a focussing cloth over the head. For most work however the windows are covered by wooden doors and the work is done without sight.) All doors are of the sliding kind and work in a groove as is shown in the diagram at *a* and in Plate I, Fig. 3. This shuts out all light. In front of the box (Plate I, Fig. 1) are two round holes for the operator's arms. These are 6 inches in diameter.

They are 7 inches apart and 6 inches from the bottom of the box (outside measurement). These are convenient dimensions for an average sized person. These holes are closed each by two sleeves with rubber tape at the wrist to draw them tightly about the arms. The sleeves are 12 inches long and are tapered slightly to eliminate surplus fullness at the wrist. The inner sleeves which are tacked on the inner side of the box about the openings are of black oilcloth for protection from chemicals as well as to cut out any possible light that might have come through the outer sleeves. These are of fine black sateen and are tacked to the outer side of the opening (Plate I, Fig. 1). Each sleeve is finished separately with

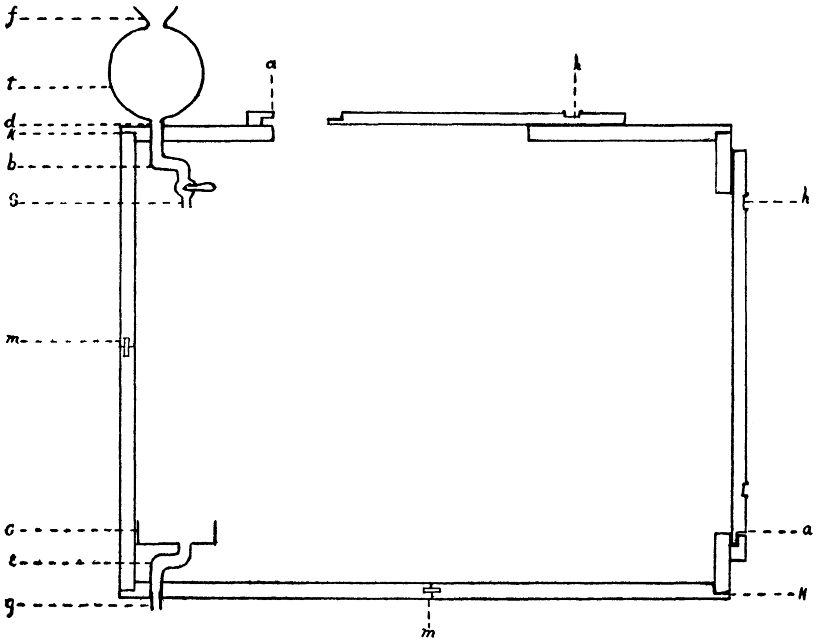

Diagram. Section of photographic dark box showing, *f* funnel for filling the tank, *t* water tank, *d* joint connecting water tank to tipe, *b* elbows for excluding light, *s* faucet for admitting water, *c* pan for waste, *e* elbows in waste tube, *g* removable section of waste tube, *a* groove in which doors work, *h* finger pulls, *k* method of joining corners and *m* method of joining seams.

a rubber draw-string so that should any light pass the closing of the outer sleeve it would be cut out by the inner one.

On the top at the left hand end of the box is a cylindrical copper tank for holding water (Diagram, *t* and Plate 1, Fig. 1, 2 and 3). This is 3½ inches in diameter and 18 inches long and is provided with a funnel (Diagram, *f* and Plate I, Fig. 1, 2 and 3) above for convenience in filling. From the tank a short section of ½-inch water pipe passes into the box where it is bent to form two elbows (Diagram, *b*) to prevent the entrance of light. To this pipe is attached a small faucet (Diagram *s*) through which water can be drawn as needed. The tank screws onto the pipe (Diagram, *d*) so that it can be removed for convenience in transportation.

Directly below the faucet is a copper pan (Diagram, *c* and Plate I, Fig. 2) 5x6 inches in diameter and 1½ inch deep for receiving waste liquids. The drain from this has two elbows (Diagram *e*) as in the tube above. At the bottom of the drain pipe is a short removable section (Diagram, *g*) to which a piece of rubber tubing can be attached to carry the waste to a convenient receptacle.

The doors are fitted with metal finger pulls (Diagram, *h*) for convenience in sliding and two metal handles are attached at the top for lifting the box. The whole is painted inside and out, with a dull black shellac. It stands on a small table in which there is a hole to permit the passage of the drain tube. I have found the most convenient height of the table for use with an ordinary chair to be two feet. In the field a box or two chairs serves very well for a support in place of the table.

When filling plate holders the box of plates and the holders are placed in the dark box and all openings closed. The workman sits with his arms in the sleeves which are pulled well on at the wrists and fills the holders in perfect comfort (Plate I, Fig. 4). In developing the plates the plate tank containing the developer, the plate cage and the plate holders are placed in the box as before. When the cage, containing the plates, is safely in the closed tank the box can be opened until the developing is done, when the tank is returned to the box where the developer is poured off through the drain (Diagram, *c*). The plates are then washed in several changes of water which is drawn from the faucet (Diagram, *s*). Then they can be taken to the light of the room and placed in the fixing bath.

The box as described is a convenient size for use with 4x5 and 5x7 plates. With a 5x7 plate tank it would be well to make the water tank slightly larger. The cost, as estimated by the carpenter who made it, is ten dollars.

Description of Plate I.

Fig. 1. Front view of photographic dark box showing openings for arms with sleeves attached, funnel and water tank at left and door at right.

Fig. 2. End view of the same with door removed to show interior of box. The inlet tube from the water tank and the faucet show above and the drain pan below. The sleeves show at the left.

Fig. 3. Back view of the above showing windows at top and back partly open exposing the red glass and door at the end partly open.

Fig. 4. At work at the photographic dark box.

ELDA R. WALKER.

METHODS OF PREPARING TELEOST EMBRYOS FOR CLASS USE

Some of the most important features of development of the teleost egg, such as discoidal cleavage and the part played by the germ ring in the formation of the embryo, require for their satisfactory demonstration that the entire egg shall be preserved and studied as nearly as possible in its natural form. For this purpose balsam mounts are of little value, for even with the vitelline membrane removed the egg usually collapses in the higher alcohols or in xylol.

For the convenient handling of cleavage stages to be studied as opaque objects I have devised the following method: Pieces of 1/8 inch glass tubing are sealed at one end by holding in a flame; a few eggs fixed in corrosive acetic and preserved in formalin are placed in each tube and the opening plugged with cotton. For these stages it is well to choose an egg having dark yellow yolk; this will aid in the differentiation of the snowy white blastodisc. The eggs may be studied by dropping the tube into a watch glass filled with water and examining them with a lens; or the tube may be held

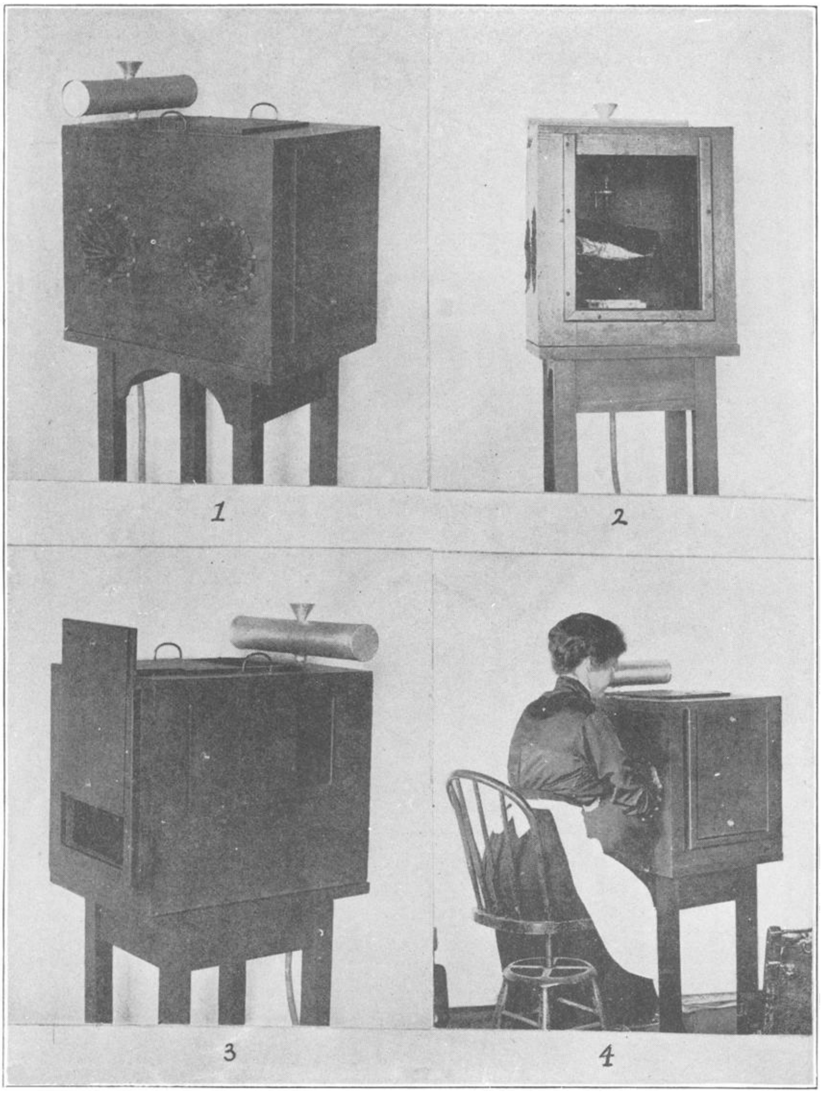

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Plate I.
A Photographic Dark Box